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AN ATTEMPT TO EVADE THE CHINESE REGISTRATION ACT.

ONE of the most daring schemes ever undertaken to nullify an act of Congress, has lately been discovered in Philadelphia, from whence it has extended to almost every city in the Union. This scheme is nothing less than a plan to evade the Chinese Registration Act which goes into effect next May, in such a manner as to make the law valueless for the main purposes for which it is intended viz: — the identification of the bearer.

The act in question, requires each Chinese laborer in this country to present himself at the office of the collector of internal revenue, with proper vouchers from the Chinese Consul, accompanied by unmounted photographs which are to be pasted on the certificates of registration, both original and a duplicate which is returned to the applicant, and which he will be compelled to show on demand to any United States official as his authority for remaining in the country. The photographic part of this certificate is in reality the only means by which they can determine whether the holder of the certificate is the same individual to whom it was granted, as the description given would in most cases fit ninety-five out of a hundred Chinamen of the class we have among us.

It is chiefly upon this photographic provision of the law upon which the framers of the act relied to make it effective.

The passage of this act of Congress naturally caused great commotion among the heads of the companies who control all the Chinese laborers in the United States. Orders were at once issued in San Francisco, and formulated throughout the country, that no Chinese were to comply and register as required by law. Subsequently steps were taken to have the law repealed.

Now however the situation has changed. The Chinese are prepared to register, and are even going to take their own photographs, and the look of almond-eyed despondency at the mere mention of registration has given way to a broad grin of celestial complacency. Unfortunately a meek obedience to the majesty of the law does not underlie this change of attitude, but is brought about by a deep-laid scheme to make the act abortive.

By some means one of the leading members of the Chinese quarter in Philadelphia found a photographic chemist, who so far forgot his duty to his country and the community as to offer for a consideration to teach the Chinese how to produce photographic positives which to all appearances should comply with the law, yet within a few months fade and disappear, when nothing but the written description would remain, thus completely circumventing the wise law which was enacted to prevent a greater influx of Mongolians into our midst.

Fortunately for the community this conspiracy was detected in time by the United States officials, and the renegade chemist discovered. A thorough investigation was made by the United States authorities with the greatest secrecy, and all of the ramifications of the conspiracy are now in possession of the authorities. Just what action will be taken in the premises, nor the names of the leaders in this conspiracy, we are not at liberty to publish at present. We can state this much, however, that the matter was discovered in ample time, and steps have been taken to uphold our laws in the matter, which we trust may end in the punishment of the conspirators, be they Mongolians or citizens of this country, who for a few paltry shekels are ready and willing to conspire with foreign outcasts to circumvent the national law made for their own protection.

J. F. Sachse.

THE PHOTOGRAPHIC REPRODUCTION OF LEAD-PENCIL SKETCHES, OIL PAINTINGS AND DAGUERREOTYPES.

FROM THE GERMAN.[1]

IT is universally accepted that many reproductions or copies can be made with the greatest ease, especially by the use of dry plates. This circumstance is not to be accepted as insignificant as formerly. Notwithstanding the great advantages of the wet collodion process, we had to combat the appearance of dry spots where an extended exposure entered into the question.

At present, however, we will consider the proper procedure and the handling of the object to be copied, against which frequently gross mistakes are made.

An ordinary pen-and-ink drawing is easy to reproduce, whereas a lead-pencil drawing, on the contrary, under certain conditions, will almost drive the photographer to despair.

The color or tone of the graphite pencil is a peculiar one, which it proves very difficult to so reproduce that the negative shows the lines in strong contrast to the local density of the ground.

If we expose fully, the pencil lines come out in a monotone, and we obtain no contrast. With a short exposure, prolonged development fails to produce the requisite strength.

Now the professional photographer, to whom such work rarely presents itself, will naturally strike the golden intermediate, and try a medium exposure, neither too long nor too short. The result in most cases will prove like the exposure, only middling —an intermediate between the two; that is to say, that when the negative is examined, it will be found that much better results should have been obtained.

But how?

To obtain strength in the reproduction of pencil sketches it is of primary importance to obtain a strong illumination. Therefore the pencil sketch must be placed in direct sun-light, or the sun-light must be reflected upon the original with a mirror.

[1] P. R.' *Photographisches Wochenblatt*, XIX., No. 1.

After focussing, stop down very small, and give a short exposure, then develop with hydrochinone and potash, according to following formulæ:

SOLUTION I.

Water, - - - - - - -	400 parts.
Sulphite of soda, - - - -	40 parts.
Hydrochinone, - - - -	15 parts.

SOLUTION II.

Water, - - - - - - -	400 parts.
Carbonate of potash, - - -	40 parts.

for use

Solution I, - - - - - -	2 parts.
Solution II, - - - - - -	1 part.

The solutions are best kept separate, and when kept in so called patent beer bottles which are supplied with gum compression stoppers, will keep indefinitely.

When the conditions preclude sunlight, the same object can be obtained by use of Blitz-pulver, as the subject thereby receives a short, active illumination.

In the development much patience will be requisite, as frequently half an hour intervenes before even the outline becomes visible. Even then it often becomes a trial of patience, and great care must be taken to shield the plate from the red light, and not to examine it too frequently, as the light, no matter how safe otherwise, notwithstanding all claims to the contrary, is apt to effect a plate during such extended development.

Prints on albumen paper from such negatives give good results, but the character of the original is best preserved by the use of contact bromide paper, which may be developed as usual with ferrous, oxalate, eikonogen, or hydrochinone.

Any possible spots are easily corrected with a lead-pencil.

The finished prints may be burnished cold.

OIL PAINTINGS form another category of difficult objects for reproduction. By the use of orthochromatic plates a great stride forward has been taken. However, independent of the sensitive

plate, the placing of the original is often very troublesome if all reflection is to be avoided.

Upon one occasion the writer had a series of valuable oil paintings sent to him to copy for reproduction by a celebrated Art Institute. They were brought to him almost without previous notice, and no time was to be lost in securing a proper lighting, as, on account of the peculiar circumstances, the messenger and porter had to wait until the exposure was made, and return the originals at once.

A driving chase of this kind does not exactly belong to the pleasures of this life. The exposure had to be made in a north front glass-house, (side and sky-lights).

All roof and side curtains were closed tightly, the camera moved close up to the side lights, and the oil paintings placed against the south wall directly opposite.

Then the roof curtains on either side over the painting were carefully lowered, only so far, however, that the painting was evenly illuminated. As soon as the light from the rolled-up curtain showed the slightest reflection, the respective curtain was at once replaced to its former condition.

That this experience may be of service to others the following particulars are noted.

The originals, mostly landscapes, were all 100 : 60 (39x23.4 in.) The distance between camera and original was about 15 feet. Objectives used were either Steinheil Antiplanat No. 7, or Voigtlander Euryscope No. 5, series IV.

With both lenses a No. 4 stop was used. The negatives were all of a uniform size, 13x18 c.m. (5x7).

With the use of Schleussner plates [one of the quickest German dry-plates—Ed.] the time of exposure was between 50-180 seconds, according to the lightness of the original.

Any one who frequently has oil paintings to copy soon settles on a regular routine, firstly : to see that the canvas is tightly stretched on the frame. Old paintings are frequently loose on the frame, and the canvas shows strong folds, which extend towards the centre, this evil can often be remedied by driving up the wedges in the corners, which tends to tighten the canvas. When the evil

is too great it becomes necessary to carefully remove the canvas from the frame without injuring it, and then stretch it anew.

By no means neglect to cleanse all old oil paintings prior to attempting a reproduction. This is best done in the following manner: After the original is well dusted wash it off with a clean sponge, using soft (rain) water, until the sponge when squeezed only passes clear water. Then dip the sponge in the following solution and rub over the painting.

White of egg from two eggs beaten and cleared.

Water, - - - - -	½ liter.
Glycerine, - - - - -	1 tablespoonful.

The albumen in this solution acts first as a kind of varnish, in addition to bringing out the deepest shadows with extraordinary clearness.

The glycerine is added for the purpose of keeping the surface moist, so that the albumen does not dry in spots, which would then appear dull and prove of injury to the reproduction.

Anyone who has no studio (glass-house) at his disposal, which can be enclosed with curtains, does better to attempt the exposure in an ordinary room. The best illumination is a subdued light, such as that in which all oil paintings are viewed to best advantage.

After focusing sharply the light can be diffused by the simple use of thin muslin.

Another matter not to be overlooked in the reproduction of oil paintings is the fact that the linseed oil contained in the colors soon starts an action which causes even the lightest parts of the painting to become more or less non-actinic. It is best, therefore, to rather over-expose, and develope with an old developer until the operator is satisfied that the plate is not absolutely over-exposed.

When ordinary dry-plates are used, strong contrasts are apt to appear, which may be equalized with matt-lack on the right side, and a corresponding local reduction of the negative film.[1]

[1] The translator wishes it distinctly understood that he neither endorses the methods of handling originals nor the manipulation here suggested for restoration. In an extended experience w.th this class of subjects, it has been found that a simple wiping off the original with a soft cloth, supplemented by careful lighting and the use of orthochromatized plates, answers all purposes without running any risk of injury to the original.

DAGUERREOTYPES. We now come to a class of originals which often prove bad subjects. Daguerreotypes, as a rule, reproduce well, giving all the fineness and detail of the original. But to obtain the proper position for the original presents extraordinary difficulties.

The presence of the mirror-like reflections which appear in almost every position, can only be avoided by placing a board, reaching from the camera to the subject, to cut off all top light. This board is to be covered on the underneath side with black cloth or velvet, and the latter is permitted to hang down on the shadow side, so as to cut off all but the clear side light. The copying bench should also be covered with a piece of black cloth. The same may be done with the brass work of the lens and camera.

This method gives perfect results.

In conclusion the writer states that he trusts the above practical hints may prove of value and a ready help to those professionals to whom such subjects are not the rule, but an exception. J. F. S.

BASIC SALTS OF SILVER.

MR. CAREY LEA'S LATEST RESEARCH.

FEW questions in photographic chemistry have more interest than those relating to the argentous series, or the basic compounds of silver, especially as not one of these bodies has yet been obtained in such a condition as to justify a very confident opinion as to its chemical constitution. Some recent experiments of Mr. Carey Lea, which are described in the *American Journal of Science*, go far, however, towards establishing the existence of the argentous series.

According to the author's previous researches, the argentous compounds, with the halogens, or silver hemihaloids, even if they exist in the free state, must be very unstable substances, but acquire stability by uniting with the normal haloids. In the same way the hemisulphate, which is not known to be capable of separate existence, becomes stable by union with the normal

sulphate. The limitation of this analogy lies in the fact that the last-mentioned combination occurs in definite proportions, which does not seem to be the case with the halogen compounds.

The basic sulphate of silver (silver hemisulphate) is formed as a double salt with the normal sulphate of silver, by the joint action of sulphuric and hypophosphorous acid on a silver salt. Hypophosphorus acid has but little action on silver sulphate already precipitated, but it is different when the silver sulphate is formed in presence of hypophosphorous acid.

Several silver salts may be used, as, for example, the nitrate, phosphate, and carbonate. The latter is perhaps the best, because the action with the nitrate is very rapid, and with the phosphate very slow.

A weighed quantity of silver nitrate is precipitated with an excess of alkaline carbonate, and washed. The silver carbonate is then treated with a solution of alkaline hypophosphite acidified with sulphuric acid. All the alkaline hypophosphite of commerce contains much more than a trace of chloride; this is best got rid of by adding to its solution a little solution of silver nitrate, stirring well at intervals, letting stand for twenty-four hours, and filtering. This filtrate, with addition of sulphuric acid, is to be poured over the moist silver carbonate and constantly stirred. The reaction is complete in twenty or twenty-five minutes, when a bluish-black film of reduced silver begins to form on the surface. Further action is then cut short by neutralising the liquid with alkaline carbonate. The precipitate is next to be washed several times by decantation. Very pure distilled water is, of course, needed throughout.

Convenient proportions are: 40 grams silver nitrate precipitated with excess of alkaline carbonate. Of sodium hypophosphite, 100 grams, dissolved in 650 c.c. of water, are treated with a little silver nitrate, and after standing and filtering, 4 c.c. of sulphuric acid are to be added, and the liquid poured over the silver carbonate. After a few minutes, 6 c.c. more of sulphuric acid, diluted with a little water, are added by degrees. With this second quantity of sulphuric acid the characteristic reddish-brown color of the substance first appears.

The crude product obtained in either way is to be purified with nitric acid. Acid of 1:42 is diluted with three times its volume of water, and of this dilute acid a quantity is taken about double in volume to that of the precipitate and of the water left after decanting closely. After a time some effervescence takes place, but the mixture does not become warm. After standing for three or four hours over the precipitate, it is to be poured off and the precipitate washed. This treatment with acid is applied three times: the first removes a good deal of silver, the second a little, the third a trace. Each time the acid is left three or four hours in contact. The product is then washed by pouring on it a large quantity of boiling water. This is repeated four or five times, each time (except the first) placing the vessel in a water bath kept at 100° C. for several hours.

The product is either dried in the air or (for analysis) at 100° C. It forms a bright brown substance, permanent in the air, changing to violet when kept for some time at 160° C. It has the peculiarity that when water is poured on it, it makes a sharp hissing noise. This takes place with the air-dried substance as well as that dried at higher temperatures, and as much with the former as with the latter.

These proportions and this mode of operating are those that were found to give the best results. But the substance is formed under a great variety of conditions. It seems impossible to bring a silver salt in contact with alkaline hypophosphite acidified with sulphuric acid without producing more or less of it, but its presence is often completely obscured by reduced silver. A mass thus obtained that looks perfectly black and might be supposed to contain nothing but metallic silver, will leave, when treated with nitric acid, a bright brown residue of the double sulphate. We have here, as before, an analogy with the photosalts. For it will often happen that a blackish mass, containing metallic silver and mixed or combined silver chlorides, will, when treated with nitric acid, resolve itself into bright purple or rose-colored photo-chloride.

All the specimens of this new substance contain a little phosphoric acid which cannot be removed.

It is possible that the silver phosphate may be combined in definite proportions, and the approach to uniformity of composition somewhat favors this idea. But such a view would require the assumption of a large, perhaps too large, molecule.

The most reasonable interpretation of these results is that we have to do with a double sulphate of silver hemioxide and protoxide in which a portion of sulphuric acid is replaced by phosphoric. The proportion of phosphoric acid seems to be nearly constant, three concordant analyses having given 2 : 09, 2 : 30, and 2 : 18, with a mean of 2 : 19.

When the double salt is placed in contact with excess of dilute caustic soda it blackens, being converted into a mixture of the hemioxide, which is intensely black, and the normal oxide. This decomposition, however, takes place much more slowly than with the salts of the protoxide, so that (unless heat has been applied) if, after ten or fifteen minutes, the alkali is poured off and the oxides are dissolved with dilute nitric or sulphuric acid, a considerable residue is found of the red-brown double salt which has escaped decomposition.

With continued treatment with caustic soda—that obtained from metallic sodium was used as being absolutely free from chlorine—the decomposition is complete.

The double salt is more readily decomposed by hydrochloric and hydrobromic acid, or even by alkaline chlorides or bromides. Under their action it instantly blackens. The part of the silver that exists in the form of hemisulphate is converted into black hemichloride or hemibromide. The extreme instability of these hemihaloids causes them spontaneously to resolve themselves into metal and normal haloid. They rarely remain as hemihaloid for more than an hour or two, and often for much less time. The change is often quite sudden, and is easily observed by the alteration of color, the black of the hemihaloid passing into the metallic grey color belonging to a mixture of normal haloid with metallic silver. The hemibromide seems to be little less unstable than the hemichloride.

A general consideration of all the reactions seems to indicate that the action of sulphuric acid and sodium hypophosphite on

silver carbonate does not lead directly to the production of the double salt, but that the hemisalt is produced in excess, often in large excess; that the nitric acid oxidises this excess, being able to attack the *free* hemisalt, but not that portion which is combined with proto-salt, and so rendered stable. If it were possible to control the formation, it is not improbable that a pure hemisulphate might be obtained. But the action of the hypophosphite tends so strongly to carry the reaction still further, that reduced silver appears, and in removing this with nitric acid the double salt results.

There is reason to suppose that numerous other compounds of silver hemioxide with oxyacids may exist. These compounds cannot be obtained by acting on the normal salts with sodium hypophosphite or with hypophosphorous acid; but it appears probable that they may be produced when the normal salts are formed in the presence of sodium hypophosphite. If to the last-named salt we add a solution of a salt capable of precipitating silver nitrate, and then further add silver nitrate, we obtain precipitates which, after standing some hours with frequent stirring, appear to contain compounds of silver hemioxide. But these products do not resist the action of nitric acid; consequently, there appears to be no means of purifying them, and of deciding with certainty as to their nature.

When sodium citrate and hypophosphite are dissolved together, and a little silver nitrate added to get rid of chlorides, then, after standing and filtering, more silver nitrate is added, a precipitate is obtained which, after a time, appears to contain silver hemicitrate in an impure form. When a little of this precipitate is put into much water containing a trace of ammonia (five or six drops to 100 c.c.), a fine rose-red solution results.

Most oxysalts of silver are darkened by light, and there is a strong probability that many other hemisalts may be formed both by the action of light and also by purely chemical means.

Photographic Work.

THE CARE OF PHOTOGRAPHIC OBJECTIVES.

FROM THE GERMAN.*

THE majority of professional photographers—portrait as well as reproduction artists—have considerable capital invested in their photographic objectives. Consequently it will not be amiss to speak about their proper handling and care, as these instruments represent a capital which, if proper care is taken, are not like so many other articles of value, subject to wear or deterioration.

Above all things, it is necessary that the place be suitable where the objectives are kept when not in use. Such receptacle should be free from dampness and dust, and not subject to strong changes of temperature. Some glass has the property to attract moisture from the air, until it is eventually coated with a more or less opaque coating. This defect becomes the more apparent according to the amount of dampness and extreme thermal changes to which such glasses are subjected.

Although such coating is easily removed by merely wiping it off, yet the glass by the defect is subjected to a gradual process of deterioration, with the eventual result of ruination to the exposed surfaces of the lens. Further, such objectives lose considerable of their illuminating power by virtue of this coating or film, and in turn give foggy negatives.

Even particles of dust which collect on the face of a lens or enter through the diaphragm open, in course of time affect the defining power of the lens.

The remedy for this difficulty is simply to wipe off the lens, but here is just where the greatest care is requisite. First, the lens should be dusted with a fine camel's hair pencil, so as to remove any possible gritty dust particles. Then follow with an old soft cotton rag which has been often washed. Chamois or buck-skin so universally used for the purpose, is not to be recommended, as in the felty surface of the leather small gritty particles often find a lodgment, which are apt to scratch the lens. Neither is the use of silk or tissue paper advisable, as it is apt to affect

*K. K. in *Deutsche Photographen-Zeitung.*

the polish of the lens. Lenses which have been handled with dirty or greasy fingers are best cleaned with a little alcohol.

Many photographers hesitate to unscrew their objectives, as they lack the experience to replace them properly. In a measure this is correct. It is a drawback that the screws of the lens casings are mostly of a fine thread. The cause for this is that mechanics can cut fine threads true much easier than coarse. It is one of the chief requisites that lenses in an objective should be absolutely true and accurate in relation to each other. Complete accuracy cannot be had by the use of the so-called bayonet clutch, independent of the unpractical handling of such connections for large lenses where the risk of a lens falling is great, especially when the connection becomes a little worn.

With a little practice the photographer will soon learn to screw and unscrew his lenses. By a little technical knack the thread can always be caught by giving a short turn in the reverse direction until the thread catches.

A safeguard against dust collecting in the barrel of the objective is now offered by the so-called Iris diaphragm, which is to be recommended on account of this and other valuable properties.

Thus far the question has only been the unscrewing of the lenses from the barrel. Another matter which is especially unadvisable is the taking of the lenses out of their casings where they are held together by an adjustable screw ring. Usually the combinations are connected with a more or less soft cement. Older portrait objectives are often separated by an intervening ring. By the useless taking apart of such combinations the risk is always run of returning them to a false position, whereby the objective becomes absolutely useless, or, as is often the ease, the discs are strained by the tightening of the ring, whereby the effect of the objective is greatly injured.

Where objectives are subjected to violent and extreme changes of temperature, it may happen from the unequal contraction or expansion of the glass and the surrounding metal, that splinters of glass are loosened, which tends to greatly lessen the value of the objective, although if the splinter does not cover too great a surface of the lens, the instrument may still prove useful by the

use of smaller stops. But it will be necessary to blacken the injured part with a mixture of lamp-black—and negative varnish —to prevent any possible reflection.

Many commercial photographers are frequently called upon to work in the open air, either outside commissions, or where the length of studio or lighting of the object prevents an exposure in-doors. Too much stress cannot be laid upon the fact that the objective is not to be taken from a warm room into freezing air for exterior work. Care must be taken to bring the objective very gradually down to the exterior temperature. Violent changes of this sort cause unequal contraction between glass and brass casing, resulting in an unequal tension which radically affects the optical properties of the objective, and is apt to lead to bad results.

As soon as the temperature of the objective is brought down to the surrounding temperature the exposures can be made without risk or danger.

The same trouble arise when the conditions are reversed, and the objective is taken from a cold receptacle into a warm room, in addition, the glasses of the objective become tarnished, which is difficult to remove, notwithstanding repeated wipings.

Lately aluminum has come into favor for lens mountings, on account of the lightness of the metal. But on account of the softness of the metal, and the ease with which the screw threads are injured, thus affecting the centricity of the lenses, its use for the professional photographer and gallery work is not to be recommended.

As a a general rule it is advisable, when an objective has become injured, either by any known or unknown cause, so that it does not fulfil its optical requirements, to send it to a practical optician, if possible the maker of the objective. J. F. S.

Much of the prevailing depressed state of professional photography is due to the pravailing system of retouching negatives.

THE LATEST FOCAL PLANE SHUTTER.

THE new shutter is intended for such as desire to obtain instaneous photograpbs of subjects having an extremely rapid movement, such as flying birds, animals, and men leaping, jumping, as it gives a shorter exposure and passes a larger percentage of light than any other form.

This shutter is made upon the roller blind principle, like all the Thornton-Pickard shutters. It fits into the back of the camera in the place otherwise occupied by the dark slide, the dark slide itself being placed in the back of the shutter. The shutter blind, therefore, works just in front of the plate and has a narrow slit in it the full width of the plate, which gives the exposure as it passes rapidly across. The speed is regulated by a small knob. The shutter is set for exposure by winding a large knob at the top, and to show how far to wind there is a winding indicator at the opposite side.

In the bottom end of the blind there is an opening the full size of the plate, by means of which the picture may be focussed on the ground glass if the blind is wound to the top.

After focussing, the blind is released to allow it to run down until set for exposure, as above described. A speed indicator is recommended to be fitted to this shutter.

For high speed instantaneous work the advantages of this form of shutter have not been thoroughly appreciated. It is capable of giving results that cannot be obtained by any other form of shutter. For the information of those who may not have studied the matter, the manufacturers draw attention to the following facts.

In the first place it should be remembered that the speed at which a shutter ought to be worked is limited by the rate of movement of the object photographed, and its distance from the camera. This is the *primary factor* in all instantaneous work.

The second important factor is the quality of the light and the intensity or rapidity of the lens. We are assuming that the speed of the plate is the most rapid obtainable. A fast plate is an *absolute necessity* for extremely short exposures.

To obtain the best results with an exposure of say 1-200th of a second, a lens having a large focal aperture must be used or the plate will be very much under-exposed. The lenses which have by far the largest focal aperture are of the portrait type (so called). These are made to work with an aperture of *f*4, or sometimes *f*3, or even faster.

Take, for example, *f*3. This lens will pass seven times as much light as *f*8, and will, therefore, take a photograph with a proportionately shorter exposure. Such a lens, however, is proportionately larger; a shutter fitted to the hood of same is also larger, and therefore will not give nearly as short an exposure as one of a smaller size, and especially so as the opening in the shutter must be as large or larger than the diameter of the lens. It will be seen from this how it is that this shutter is so much superior for obtaining high speed results with large sizes of cameras, such as 12in. x 10 in. and 15in. x 12in.

The advantage of the focal plane shutter is that it works just as quickly with a large lens as with a small one. Using a small lens, and a small shutter on the front of it, may give the speed required, but will not pass the requisite amount of light, and therefore will only result in under-exposure. Sufficient light can be admitted by lengthening the exposure, but this, of course, would result in a blurred image, owing to the object moving during exposure.

With a Portrait Lens and the Focal Plane Shutter *both sufficient light and speed are obtained.* We wish specially to call attention to this point with emphasis. For some reason or other it seems to have been overlooked by the majority of workers who are striving after good results with extremely short exposures.

The short exposures obtainable with the Focal Plane Shutter are due to the fact that only a part of the plate is exposed at once. The Shutter consists of a Roller Blind (like the other Thornton-Pickard Shutters), but working in front of and close to the plate. The blind has a narrow slit in it which travels rapidly across the plate. The whole exposure is made, say, for the quarter-plate size (4½in. by 3¼in.) in 1-50th part of a second, but assuming that the slit is only 1-10th the width of the plate, each

particular portion of the plate will receive only 1-10th of that exposure, viz., 1-500th of a second.

Exception might be taken on the ground that in a subject such as an athlete running, or a man diving into water, that the portion of the figure exposed last would be slightly in advance of the portion exposed first This is, in fact, theoretically true, but the whole duration of the exposure from first to last being so very rapid, this slight distortion is practically nothing, and is quite invisible to the eye.

The speed of the Focal Plane Shutter can be adjusted by a small knob, shown near the bottom of the camera. This has been found in practice to be much better than a variable slit in the blind, which introduces mechanical complications at once that are not to be depended on. The range of speed is from about 1-75th to 1-500th a second, which has been found to be the most suitable speed.

If ordered specially, the Shutter can be made to work at double that speed, namely, from 1-150th to 1-1000th of a second.

We may mention one minor advantage of the Focal Plane Shutter, namely, that it protects the plate from rays reflected from the inside of the bellows during exposure; none can pass except through the narrow slit, owing to the opaque portion of the blind being close in front of the plate.

Edwin H. Williams, Esq., of the Baldwin Locomotive Works, Philadelphia, who showed the exquisite native colored Japanese slides last winter, is passing the winter in Santa Barbara, California.

The Pacific Coast Photographer has completed its first volume with credit to all concerned in its publication. Our occidental luminary has evidently come to stay, and with the experience gathered during the experimental year will be the better equipped to avoid the shoals and rocks which beset the course of photographic journalism.

VENTILATION IN THE DARK ROOM.

EDGAR RICHARDS.

AMERICANS, as a rule, do not pay that attention to the subject of ventilation that its importance to health demands, and our houses, theatres, churches, halls, at this season of the year, suffer from the inadequate means provided for getting rid of the superheated and vitiated atmosphere, ventilation being considered to mean a strong blast or draught of air blowing directly on the person.

The *perfect* ventilation of any inhabited room can only be said to have been secured when each person in that room breathes air of the same composition as that surrounding the building, and which has not been contaminated with the products of combustion generated in the building, nor the exhalations of his own or his neighbors' lungs, and at the same time feels no currents or draughts of air, and is neither too hot nor too cold. The amount of air required to secure such ventilation is very large, and on account of the increased cost of fuel involved in heating such a great volume in cold weather is rarely provided.

Good ventilation may be secured by keeping the vitiated air constantly diluted with fresh air to a certain standard,—that is, the air should contain but a certain percentage of impurities. These impurities are more or less injurious to health, and vary in the way they are affected by dilution. Offensive or poisonous gases of all kinds, such as carbonic oxide or sulphuretted hydrogen, can be diluted with fresh air, until a breath of such diluted air is not specially harmful; but with sewer gas and air from decomposing animal or vegetable matter, the presence of *diseased germs* therein is not so easily rendered harmless by dilution, the only effect produced being that in a certain air space there may be but two or three germs instead of a hundred, and thus the liability of infection may be lessened.

Air is composed, in varying proportions, of the three gases, oxygen, nitrogen, and carbonic acid; the amount of the latter is very small, but practically the same at a point ten miles above

the earth as it is on the sea-level. Although each of these gases has a different weight for the same volume (specific gravity), yet the mixture is a very perfect and stable one, and does not readily separate into its component parts unless some substance is introduced, which will combine with or absorb one of the gases and not the others. This uniformity of mixture depends on what is known as the law of the diffusion of gases. Gases expand freely and rapidly into the space occupied by other gases, except when chemical combination takes place, as if such space was a vacuum.

When air is heated it expands, and occupies a greater volume, hence weighs less than it did before, the result being that if it is free to move, the heavier surrounding air will flow in from all sides, and push the lighter, heated air upwards. On the other hand, when the air is cooled it contracts in volume, and consequently weighs more than the same volume of air not so cooled. On these two properties of gases is founded the practical application of ventilation by means of natural draught, the velocity with which the ascending column of heated air moves depending upon the difference in temperature between it and the colder air around.

Most dark rooms are constructed on the theory that to be *light*-tight they must necessarily be *air*-tight, and no provision consequently is made for ventilation. With amateurs, in the majority of cases, their dark rooms do not have windows communicating with the outside air, but are generally closets opening into other rooms or hallways, and, therefore, all the more reason to provide them with some means of constantly changing the air. The air in such rooms, especially those of a small size, becomes quickly vitiated when in use, and the worker complains of suffering more or less from headache, giddiness, fatigue, and other symptoms, caused by inhaling such foul air.

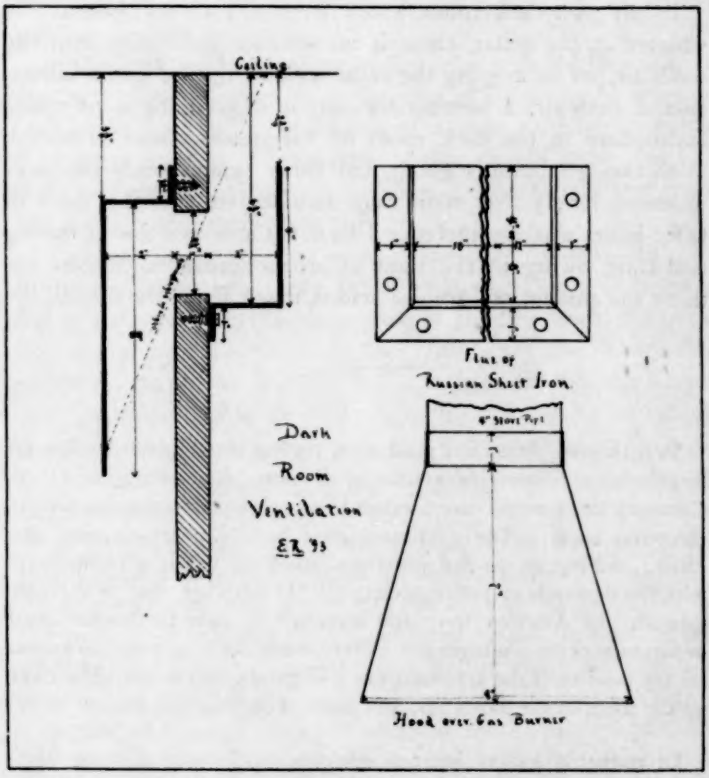
The amount of fresh air required in any case will depend on: 1. The dimensions of the room: 2. The difference between the external and internal temperatures; 3. The number of people occupying it; 4. The number of gas- or oil-lights burning in it; and 5. The length of time it is occupied. It is a good rule to provide that the minimum amount of air supplied per hour should be about one-and-a-half times the cubic contents of the

room, and that one cubic foot per second, or 3600 cubic feet per hour per head, and sixty cubic feet per hour per light, be allowed in addition. These quantities may be increased with advantage, when we consider that in the open air, without any wind stirring, and at the normal temperature of 60° F., there would flow about 32,500 cubic feet of air per hour over the person of an average man, assuming him to present an area of nine square feet, and the displacement of the air to be at the rate of one foot per second. The higher the external temperature the larger the volume of the air required to secure comfort, and when the atmosphere is nearly saturated with moisture, as in hot, murky days in summer, it no longer serves to remove the animal heat, and comfort cannot be secured even out-of-doors.

Having ascertained the necessary data called for by the above rule, in regard to the room, inhabitants, and lights, we divide the total number of cubic feet by 3600, to obtain the amount of air required per second to be supplied. This number should be increased by one-fourth of itself, to allow for frictional and angular resistance, and this latter figure taken for the minimum area in square feet and fractions of a foot, to be provided in the air inlets and outlet ducts. These ducts may be circular in form, as presenting the greatest area in proportion to the friction-producing surface, and if this is not possible, then the square should be used. It is a good plan to divide the entering current as much as possible to avoid unpleasant draughts, and to place the outlets in the corners of the room near the celling, opposite the inlets, and as far as possible from the latter. In the majority of cases, the heat given off by the gas or oil-lamp can be readily availed of in setting up a good current of heated air, which may be carried off through a four- to six-inch stovepipe placed over it, with a sloping hood some eight to ten inches in diameter, and connected with a chimney where possible, or in default thereof, led out of the room and discharged into the hallway or outer room. If an outer encircling pipe, five and three-quarters to eight and a half inches in diameter, be placed for a short distance back from where the inner pipe passed out of the room, and a flange placed between the two pipes, so that the air is

drawn from the ceiling, the outer pipe will carry off nearly as much foul air as the inner.

The form of rectangular flues shown in the sketch can easily and cheaply be made by any sheet-metal worker, and they will be found to be very readily put up, and to work very satisfactorily. No light will leak in from outside, yet ample room is afforded for the heated foul air to escape.



The inlet-flues may be placed in the lower panels of the door, by cutting out the upper four or six inches of the panel, and covering the opening with two ten-inch flanges, ten to twelve

inches long, placed on either side of the door, with their openings downward.

Where there is a window in the dark room, opening into the outer air, one of the lights from the upper sash may be taken out, and a board of the proper dimensions substituted therefor. In this board an outlet flue, like that shown in the sketch, can be placed and furnished with a flap, whereby the current can be regulated in very cold weather.

In my own dark room, which is only 5 x 7 x 7 feet, and is situated in the cellar, there is no window connecting with the outer air, but by keeping the cellar window opened for the admission of fresh air, I have no difficulty in maintaining a very pure atmosphere in the dark room by the means above indicated. With two gas-burners going, and three ceiling vents, the thermometer hardly rises more than two degrees after the lapse of three hours working therein. I have not analyzed the air during that time, owing to the want of proper apparatus, but do not think the amount of carbonic acid is much above the normal.

While promptness and good work are the surest advertisement for large returns, courtesy to a stranger is always the best argument. In Germany the greatest care is taken to obtain a person suitable for the reception room. The applicants must be tidy, courteous, and educated; and one of the first questions asked is, "Are you conversant with the demands of polite society?" If not, her case is not considered. In America too little attention is paid to this particular department of the photographic gallery,—anyone is supposed to answer for the position if the applicant can spot prints, and is willing to clean up the room in the morning. The result is decreasing business.

In many a gallery business would be much better if more attention were paid to the reception room of the establishment. Cleanliness, tidiness, and polite attention in the business department of the professional photographer, will go further to impress a stranger than a wall full of worked-up specimens, and show cases full of imperial cabinets of celebrities.

CARELESS VERSUS CAREFUL WORK.

XANTHUS SMITH.

IT is a fortunate circumstance, no doubt, that we are not all constituted alike in this world, as truly enough variety gives spice to our existence, and possibly enough the essence of this condiment lies in the pleasure that we derive from criticising those surrounding us for the exhibition of their, what to us appear peculiarities and shortcomings.

In the little world of photography what a varied way of procedure is presented to us in the practice of the art by its votaries, so much so, that although at first one would naturally pronounce it an exact science, on consideration, we should, after recalling our experiences in connection with the craft, rather say that there was really nothing exact about it.

Recalling to our memory some of the dark rooms,—we refer to those of professionals only,—that we have endeavored to make use of temporarily in the prosecution of amateur work, the question would naturally arise to us, What is the use of any care whatever about the amount and character of the non-actinic light, or leakage of white light, through cracks under and about doors, windows, and partitions; or of cleanliness of trays, graduates, sink, floor, and shelves, when salable work is daily turned out from establishments where there is so little regard paid to these matters which receive such careful attention from many who should, perhaps, be called fastidious photographers?

Scrupulous precision, while it generally begets excellence in the pursuit of photography, sometimes results in total failure, whereas the utmost carelessness does not, it would seem, by any means debar us from attaining real triumphs in the art. Whether it is that the happy triumphs attained by the careless man are due to a real want of stability in the results which should pertain, in a proper course of procedure, in taking pictures by the aid of light and chemical reaction, or whether it is that in the course of chance he would naturally sometimes fall upon the exact details necessary to bring about the required result, we will

not pretend to say. But, certain it is, that taking the subject in a matter of fact way, and setting aside the marvelous and the happy-go-lucky phase of it, there is to our mind nothing like careful work for the man who wishes to come out best in the long run.

By some of those freaks which we often see occurring in nature, a habitually careless photographer will sometimes hit upon, or rather bring forth, something that may really be envied for its beauty and excellence by the most painstaking plodder in the art, but if we consider the disappointments of the careless photographer in his many failures, and his mental uncomfortableness as the amount of wasted time and material forces its evidences upon him, we must agree that the painstaker is the happier of the two, for the bulk of his time and mass of his materials is bringing forth all that should be expected of it. The successful practice of photography undoubtedly requires a peculiar and especial adaptation on the part of one taking up the pursuit, if he is to arrive at a high degree of success. The production of fine photographic pictures, and reaping the benefits from them which they deserve, does not mean simply the attainment of certain rules and the management of set formulas, for this, necessary as it is, forms but a very inferior portion of all that is really required to constitute a master in the art of photography.

In the studio or portrait branch of photography, to succeed a man must possess, in addition to perseverance and good business abilities, a large amount of good address and tact, and, highest of all, artistic taste or good judgment in matters of art. See how rare it is to find all these qualities combined. Suppose a predominance of artistic taste, with an utter indifference to all the minor details of the business,—a combination likely to occur,—what a drawback to success there would be in the waste and other losses incident to a carelessly-conducted business. And, again, think of the portrait photographer who proceeds with conscientious care in all the details of his work, but who has the misfortune to have a cold, repellent, or surly manner,—how can he deal successively with ladies and children, and, indeed, with the majority of men? Such a one would undoubtedly do better to turn

his attention to outside work, where his unprepossessing manners would fall harmlessly upon trees and rocks, or rest unappreciated by the brute creation.

Out-door photography demands its especial qualifications as well as the studio branch. Good general artistic sense, quickness of perception, rapid and sound judgment in selection and timing: the latter qualification, timing of exposure, being one of great importance in out-door work. It would, indeed, be rather a stupid fellow who could not, after a month or so of experience in a skylight, judge very closely of the amount of time which should be given a plate to accord it with the hour and character of the day, and complexion of the sitter, but in the variety of work which falls to the share of the outside photographer, the change in the conditions of lighting, of subject, and of exposure is almost infinite, a large share of the difficulty, to which the studio worker is not subjected, being in the various uses of the stops.

In landscape and architectural work, the exercise of knowledge in the use of lenses, taste in the selection of point of view, regard to the state of atmosphere and other matters, such as the most suitable direction of light, dimension of stop, and times of exposure, greatly enhance one man's work over another's. In the portrayal of animal life the utmost pains thould be taken; in the first place to acquire a knowledge of the poses in which different animals show their good points to the best advantage, the best lighting and accompaniments, chiefly as to background, for the success of a great part of animal photography is marred by carelessness about the background. In addition to all this, though, great patience and perseverance are required in the management of animals in photography, and, we must add, a large share of good luck; but when success is attained, we have in refined pictures of handsome animals one of the most interesting phases of the photographic art.

The business of photography has so completely changed its character since the introduction of the dry plate, that time and skill may be bestowed in a direction in which it was necessarily curtailed in the old wet-plate days. In being relieved of all the work incident to sensitizing his plates, and of much more which

it is not worth while to enumerate, the photographer of the present time may devote much more pains to the artistic phase of his work, and we hold, as do many others now, that the increased capabilities placed in his hands demand a much higher standard of excellence than was looked for from the collodion worker.

We have been interested in a discussion which appeared lately in the British photographic journals in regard to the best introductory training of youth for the business of photography. The advice having been set forth that the best preparation would be a careful training in some good scientific institute, it was held in opposition that the introduction at once to the daily business of the studio, thereby acquiring a practical knowledge of the actual working details, would lead to the best results, letting the scientific and art acquirements be engrafted subsequently to any extent that time and inclination permitted, and we must say we heartily concur in the latter opinion. Very little science is required in the business of photography now, owing to the manner in which everything is served up ready for the work by the large manufacturer and the stock dealer. If a man is to be an investigator and discoverer, that is a different matter. In the ordinary run, if he is to be a successful photographer he had better leave experimenting to others; and as to the art training, the very best he can have will be to deal directly with the difficulties of grouping and light and shadow, using his eyes and his judgment to the best advantage in looking for the happiest attainments of the most highly-skilled, and using them as a source of emulation and guide.

We would, say let a youth attack the pursuit which he intends to make his life's calling at once, let him be trained to be thorough and conscientious in every detail of it. He should be proud of it, always striving to excel in it, and while his training should be to exercise that keen attention to business and prudence in money matters, which begets what is known as business success, see that he has a higher aim than for dollars and cents alone, for he will never attain that honorable place in his business and amongst men, where the latter is the sole stimulus, which he may if he feels that he must also stand as high in ex-

cellence in his calling as his abilities and surroundings have permitted him to do.

As we have shown at the outset, the various natural gifts and the requirements required to make a successful photographer, prove the business to be far above that of a mere trade. The pursuit is well worthy of all the talent and all the professional pride that its votaries may bestow upon it, and, therefore, let those entering upon it endeavor to be classed as careful workers, and let them relegate all the slop-shop and haphazard systems of procedure to the habitually careless man, who will always be wallowing in the mire of what he will be pleased to call bad luck, and to the rich amateur, who has both the time and the means to bestow plates by the dozen, and the time incident to exposing and developing them, in order to secure, perhaps, one really fine negative in a hundred.

For Browning Blue Prints.—Dissolve piece of caustic potash as big as a soup bean in 5 ounces of water. Place print in this solution, and it will fade to orange yellow. When all blue prints have disappeared, wash print thoroughly in clear water. Then dissolve a partly heaped teaspoonful of tannic acid in 8 ounces of water. Put the yellow prints in this bath, when they will turn to a brown that can be allowed to assume a tone of any required depth. Then wash well and dry.

The National Photographic Exhibition.—The Directors of the Crystal Palace Company announce that an Exhibition of Photographs and Photographic Apparatus will be opened on Monday the 10th of April, and will remain open for three weeks. The Exhibition will be under the joint management of Mr. S. G. Buchanan Wollaston and Mr. Charles W. Hastings. Full particulars will be announced at an early date.

The Length of the Day.—By a simple rule the length of the day and night, any time of the year, may be ascertained by simply doubling the time of the sun's rising, which will give the length of the night, and double the time of setting, will give the length of the day.

THE TALC INDUSTRY OF THE GOUVERNEUR DISTRICT, ST. LAWRENCE COUNTY, N. Y.

[The following interesting details of the talc industry have been furnished us by Theo. D. Rand, Esq., the eminent geologist, in reference to the use of that mineral as an adulterant for paper. It is an extract from a paper by Axel Sahlin, M. E., of New York City, read before the American Institute of Mining Engineers at the Schuylkill Valley Meeting, October, 1892.]

THE day is long past when linen and cotton rags were the exclusive raw material of the paper-trade. Wood-fiber, chemically or mechanically prepared, straw, hemp and Esparto grass have largely supplied the demand, which the old materials did not suffice to fill. But even these newer fibers have been of late supplanted, to some extent, by mineral pulp. Weighting and filling materials have also been resorted to, partly to give body to the fabric, partly to increase its weight and reduce the cost per pound. China clay, sulphate of lime and soapstone have generally been employed as loading materials. Even though these materials lack fiber, their addition must by no means be viewed, as it too generally is, entirely as an adulteration. No doubt, to a certain extent, they weaken the paper; but for ordinary grades the addition of these non-fibrous substances is a positive advantage, as they close the pores between the fibers and lend to the paper a great degree of opaqueness and a superior finish. Fibrous talc, as a form of pulp, has the same effect without appreciably weakening the paper.

When, therefore, some fifteen years ago, fibrous talc in large quantities, and of marvelous purity and whiteness, was discovered in the neighborhood of the town of Gouverneur, it was not long before the paper manufacturers of Pennsylvania and New England realized its value. The talc was first employed as an adulterant for chemical wood-pulp, prepared by the hyposulphite processes, and some time and experience were required to demonstrate that the adulterant was almost as valuable for its binding effect as the wood-pulp itself. This fact once established, the talc of Gouverneur entered the paper-mills under its own name, or that of mineral-pulp, and entirely without objection from consumers. Thirty

per cent. or more of the pulp for good printing-paper can profitably be made to consist of ground talc, which is assimilated in the paper to a far greater extent than other mineral substances. From 75 to 90 per cent. of the talc added is retained in the paper, as against 30 to 40 per cent. of the non-fibrous loading-materials generally used. It is therefore evident that 1 ton of talc will produce as great a weight of paper as 2 or 3 tons of sulphate of lime or clay.

The village of Gouverneur is situated near the northwest edge of a geological island of Azoic rocks; granite, gneiss, limestone and marble being the representative features of the formation.

Since 1879, ten distinct mines have been opened, and some of these have reached a depth of 400 feet or more on the slope. The present output from these ten mines amounts, according to a close estimate, to 51,000 tons per annum, which figure, however, could be readily doubled if the reducing-mills had the capacity to handle the larger quantity.

The cost of mining varies from 60 cents to $1.25 per ton, to which must be added the royalty charged by the land-owners, amounting to from 50 cents to $1 per ton of talc raised. The transportation of the rock to the mills by wagon or sleigh, over wretched country roads, costs from $1.35 to $1.50 per ton. The total cost of talc-rock deposited at the different mills, therefore, varies from $2.35 to $3.75 per ton.

It is not often that nature interferes with human legislation in granting monopolies; but such a monopoly has, so far, been given to the talc-industry of Gouverneur, since no other deposit has been discovered of equal purity, color and fiber. In Virginia talc is mined and ground; but while it possesses the fiber it lacks the whiteness and luster of the Gouverneur mineral. Again, in North Carolina and South Carolina talc is found beautifully white; but it lacks the fiber, and is therefore really nothing but a steatite of remarkable purity. In this practical monopoly conferred upon the Gouverneur industry lies its great value and importance.

When the talc reaches the mill, the practice has been to pass it successively through one coarse and one fine crusher, and then

through two successive pairs of burr-stones, for which, in some mills, Griffin mills are substituted. The talc is then put into cars, each holding from 800 to 1600 pounds, and this load is at one time emptied into an Alsing cylinder, about 6 feet in diameter and from 6 to 10 feet long. This cylinder is lined with porcelain brick, 2 by 3 by 6 inches in size. It is filled to about one-third with round flint pebbles, brought from Greenland or Labrador, those from Greenland being preferred. These pebbles are about 1¾ inch to 2¼ inches in diameter. The porcelain lining for a 6 feet by 8 feet cylinder weighs 2500 pounds. The bricks cost 3½ cents per pound. In a cylinder of the size given, 3¼ tons of pebbles worth $21 per ton, are used. The lining generally lasts about three to four years; the pebbles split before they wear out; and the addition of 800 pounds of pebbles per annum is required to keep the cylinder properly charged. When the talc is deposited in the cylinder the man-hole is closed and the cylinder is revolved for about 3½ to 4 hours, at the rate of 20 revolutions per minute. At the end of this time the man-head is removed and a grating fine enough to retain the pebbles is substituted. The cylinder is then started at half speed and the talc is run out through the grating, ready for screening and bagging. The heat generated in these cylinders is very great, but, of course, does not exercise the deleterious influence on talc, that it would on less refractory substances. It, however, frequently causes the pebbles to crack and split. The burr-stones have a life of two to three years, and require dressing every two weeks. The track and roller of the Griffin mill are reported to wear well; but the scraper-shoes, or agitators, have to be renewed every week. Two sets of burr-stones will keep four cylinders employed; two Griffin mills are used for six cylinders.

As yet, the talc industry is in its infancy and hardly known beyond a few localities. When once the fibrous mineral pulp shall have become familiar to the paper-trade of the world, it will not be the want of a market, but the scarcity of talc that will regulate and limit the development of the peculiar industry of Gouverneur.

THE USE AND ABUSE OF HAND CAMERAS.

IF it were possible to enumerate the number of negatives produced in each of the last few years—or perhaps it would be better to say the number of gelatine plates *used*—the year which has just closed would be found to have absorbed many more than any of its predecessors. But it would not be fair to regard this as a sign that photography had advanced with sudden strides during the past twelve months. It is a gratifying thing to the plate-makers and dealers that so much work has been done; but the increase in the absorption of material is due, not to the sudden activity of photographers, but rather to the accession to their ranks of many who have been tempted to join by that very clever motto, "*You press the button, we do the rest.*" In other words, a small army of would-be photographers has been created by the makers of hand cameras, who have reduced the work of exposing a plate to such a simple operation that a child three years old can be taught how to do it.

We used the words "exposing a plate" advisedly, for this, and nothing else, is what most of these recent recruits are content to do, and we all know that exposing a plate is by no means the same thing as taking a picture. As a rule, the man who purchases a hand camera for the sole reason that it represents a fashionable hobby has no latent ideas whatever with regard to picture-making. He goes through the Academy picture galleries every year as a kind of duty, and marks in his catalogue those works which the newspaper critics tell him are worth looking at; but he has no selecting powers of his own, and without the art critic's help, would probably pick out the worst picture in the exhibition as being the best.

When such a man buys a camera it is quite easy to divine what he will do with it. He will read nothing about its capabilities, but will fire away indiscriminately at everything. He will not bother himself about light, time of year, or time of day. A dark interior, or a sunlit exterior view, are both the same to him. He presses the button and leaves others to do the rest.

It would be amusing sometimes to follow the packet of negatives in embryo—either plates or films—to the dark-room of the unfortunate individual whose work it is to develop them, and, at the same time, to satisfy the aspirations of their self-confident owner. The said owner is quite unable to say whether the plates are likely to be under-exposed or over-exposed; he says that he has followed the directions implicitly by pressing the button, and that he expects the rest of the contract to be fulfilled as per advertisement.

The conscientious operator in the dark-room receives the package, and forthwith begins to sample its contents by developing a plate. He is extremely careful to commence with a very weak solution, and he only begins to strengthen it when he finds that after three minutes have elapsed there is no trace of an image. At last something appears and gradually gathers strength. It is the image of a window, or rather of the sky divided up into squares by the framing of a window, but no coaxing will induce anything else to appear on that plate. Possibly the next plate will blacken all over at the first application of the developer, and is perhaps the resultof photographing the sun at noonday, or the outcome of an experimental examination of the plate in daylight in order to see if there were any picture visible upon it. But we need not multiply examples; those engaged in the work know well enough what awful examples of photographic wrong-doing are perpetrated by him whose work is confined to exposing the plates. They know, too, that the barren results are attributed to the apparatus, the plates, faulty development—in fact to anything rather than to its true cause, the incapacity of the button-presser.

But happily there is another type of worker with the hand camera—namely, the man who understands its limitations as well as its possibilities. He knows well enough that it is futile to attempt subjects with a snap exposure which require half a second or more, and such subjects he will religiously pass by, unless he carries with him that very useful thing, a light tripod. Of course, with such an aid, the instrument for the moment ceases to be a ***hand*** camera, but the support at once enables subjects to be pho-

tographed which could not possibly be attempted when the instrument is held in the hand.

But for hand-camera work, pure and simple, the light must be at its best, and the plates of the quickest kind obtainable. Under such conditions—even with a cheap instrument fitted with a stopped-down single lens—good work may be done if the worker content himself with open landscapes, sky, and sea effects, and the like. For street scenes, where the light generally filters through a more or less smoky atmosphere, a better form of instrument is desirable, and the worker will probably feel the want of a focussing arrangement by which he can take single figure studies at close quarters. Our streets—and London streets especially—teem with faces indicating many types of humanity, and a picture gallery consisting of studies of this kind, obtained with a hand camera, would not only be of absorbing interest, but would be a valuable testimonial to the ability of the man who produced them, for the difficulties involved in carrying out the work would be very great. It is clear that we must not judge of the capabilities of the hand camera until we have seen the work of those who regard it as something more than a passing hobby.

Photographic News.

CARBON PRINTING.

AS a feather cast upon the waters shows the direction of the tide, so the annual exhibition of the Photographic Society of Great Britain may be taken as an indication of the advancement or otherwise of different photographic processes. Allusion was already made to the fact that the carbon process is better represented in Pall Mall this year than it has hitherto been. Therefore, it may well be assumed, with other knowledge we are in possession of, that the process is now being more extensively worked than at any previous period, not only for large sizes by the profession, but also among amateurs for small work. It is not at all surprising that this should be the case when it is considered that, apart from the undoubted permanence of the prints,

a greater variety of effects—now so much in demand—are to be obtained by it than by any other process, or, indeed, by all the other processes combined.

There is not a process that will yield effects that cannot be got equally as well by the carbon method, while by it many others can be secured that would otherwise be impossible. When all these advantages are enumerated, some of our younger readers may—and not unnaturally—inquire why a process combining so many qualifications was not more generally taken up by photographers in the past? For their information on this point a few words may not be out of place, as it will explain the different conditions of working, then and now.

When the carbon process was first introduced, now some thirty years ago, it was the subject of a patent, and heavy charges were made for licenses, while, at the same time, the process was troublesome to work. For example, the exposed tissue had to be cemented to paper with India rubber for development, and afterwards transferred to its permanent support by treatment with benzol. At that time, the only real advantage that could be claimed for the process over those in general use was permanence, while the quality of the results, for small work at least, was inferior to what could be obtained in silver. Simplifications followed, India-rubber was dispensed with, the single transfer method was introduced, and was generally adopted for large sizes.

Some sixteen or seventeen years ago considerable impetus was given to the process by an ingenious Frenchman, M. Lambert, who demonstrated that, by his modified method of working, small prints could be produced which were quite as good as, if not really better than, those on albumen paper. This modification was vigorously exploited by him, and at the time some were sanguine enough to predict that the knell of silver printing was sounded. Progress was, however, considerably impeded again by patent rights, and the way in which they were dispensed, Exclusive licenses were granted for certain towns and districts, the purchasers of which could not or would not take the trouble to learn how to master a, to them, new process, while others were precluded from working it by these exclusive rights. In some

instances, licenses were taken without any intention of adopting the system, but simply to prevent more enterprising rivals from taking it up. With regard to amateurs at this time, licenses were also requisite, but they were eventually granted at a merely nominal fee.

All patents in connection with carbon printing have long since expired, so that now the process is open to all. It is only within the past two or three years that the simplicity of the carbon process has been fully realized. Indeed, by some, it is even now considered to be a troublesome one. This is clearly proved by the remarks often heard during the several demonstrations that have been given before some of the newer societies, which are chiefly composed of amateurs and young beginners. Most persons seem surprised, when they see the method worked for the first time, at its exceeding simplicity.

At the present time, amateurs and workers on a small scale are relieved of one of what used to be the most troublesome and uncertain of the operations, namely, the sensitizing and drying of the tissue. Some little time ago the Autotype Company—and the example set by them has been followed by other firms—commenced to supply the tissue in small quantities, ready sensitized, cut to the standard sizes, and in the proper condition for use. This has conduced more than anything else to popularize carbon printing among small workers. Sensitizing tissue is a somewhat messy operation, and those familiar with the subject know quite well that the drying of it, so as to obtain it uniformly in its best working condition, is a somewhat ticklish operation without suitable arrangements. It used to be said, and not without reason, that more skill was required in sensitizing and drying of the tissue than in any other portion of the work. It will now be seen why the practice of carbon printing has of late become so much more popular, and promises to become still more so among amateurs and others aiming at variety of effects.

By the carbon process pictures can be obtained in every conceivable color, with any surface—from the highest enamel surface to that of the roughest drawing papers—and, indeed, on almost any material. If the single transfer system be adopted, it be-

comes one of the most, if not the most, simple printing process to work. The exposed tissue is merely squeegeed onto the paper, then treated with warm water until the image is sufficiently developed. A short immersion in a solution of alum and a final rinse in water complete the work, while an absolutely permanent picture is secured. Where is a simpler process than this? True, for single transfer, a reversed, as regards left and right, negative is necessary; but negatives on celluloid fulfill this condition, if they be printed through the celluloid. With the thicker films there will be, practically, no loss of sharpness if the exposure be made to a tolerably direct light, and with the thinner ones any light will suffice to secure sharp impressions. Objections to carbon painting have been raised by some who have in times past decried the process, because the image cannot be seen while printing; therefore, the correct exposure cannot be judged. In doing so, however, they quite overlooked the fact that the same remark would apply equally well to the taking of negatives, the use of bromide papers, and other photographic operations.

In the carbon process the latitude in exposure is so great that an error of 50 to 100 per cent. either way does not really mean the loss of the print, it is merely a question of time and temperature in the development. Furthermore, in this process the print, when wrongly exposed and made right in the development, is of the same color and tone as that of those which have been correctly timed, a condition that does not obtain in any of the silver processes.—*British Journal of Photography.*

Statuesque Photography.—By one of our British exchanges we see that they are now advocating statuesque photography in England, and that Messrs. George Bagnall Bradshaw & Co. claim a patent for the scheme. This is certainly not a new process, as it was done for years past in the United States. If we mistake not, Genrin, of St. Louis, was the first to make them a regular branch of studio work. Specimens, however, we think were published in *Snelling's Photographic Art Journal* during the early fifties.

The Editorial Dropshutter.

On another page we print an account of the attempt made to circumvent the Chinese Registration Act, lately passed by Congress. It is due to *The Call*, of Philadelphia, who first sounded the keynote of warning, that the schemes of the conspirators, yellow and white, have been foiled, and the Federal authorities put on their guard. Additional information on the subject will be furnished as soon as it can be done consistently without interfering with the course of justice.

Our esteemed contemporary, *Photographic Work*, in commenting editorially upon the new departures of photographic societies, states that "One of the photographic societies which publishes a journal for circulation among its members,—and very many societies do this,—announced a short time ago that its papers would not be communicated to the photographic press according to the usual custom. The effect has been remarkable, as since then no paper which can, even by a strained use of the word, be called interesting, has been communicated to the society, unless, indeed, the curious blunders of one communication may be looked upon as interesting."

In continuation the editor says that "As a matter of fact, workers communicate their results to the photographic societies in the expectation that by this means they will secure the appearance of the paper in all the recognized organs of photographic progress; consequently, a society which issues papers to its own members only, is not likely to receive important communications."

Amidol.—It is somewhat a pity that the moment any new developer is introduced, it should find itself at the mercy of a host of experimentalists who before long succeed in transforming it out of all knowledge, and in most cases ruining it in the estimation of those who use their perverted formulæ. Why, for instance, insist on adding alkali to a solution of which the chief merit is that it will develop well without it? Indeed, the makers originally stated that it would fail if so used. So it would, but the experimentalist crams it with an enormous amount of bromide to enable it to stand this unnecessary addition.

Surely the inventors and producers of most commercial articles of the sort know their business best. Amidol, using the maker's formula, is simply perfection.—*Amateur Photographer* (*London*), *Feb. 3, 1893*.

The medal discussion is still kept up in the English press, and unless the medal nuisance is speedily abolished, will work serious harm to true photography. The medal hunter is of no advantage to any organization. Any amateur photographer who deliberately starts out to capture medals, and uses photography merely for his selfish ends, rarely hesitates to stoop to acts of dishonesty and falsehood to achieve his coveted bauble.

To be of actual service to the art no exhibit by an amateur should be entitled to competitive examination unless the finished product was entirely the individual work of the exhibitor. In the case of a professional the whole work should have been done in his individual establishment.

An honest, conscientious amateur would scorn to pass off another's work as his own. With the photographic medal hunter, however, the thing is different. He wants the medals honestly if possible, but by all means will grab the medals. We know of a case where all that the exhibiting amateur had done was to make the exposure, a professional doing the rest, even to loading the plate-holders and putting tickets on the slides as to how filled. Yet this same amateur's pictures won an honor, and he was congratulated by his admiring friends as an expert and successful amateur photographer, and poses thusly before the community up to the present day. In another case in the picture which took the chief honors, a portion only of the negative represented the work of the exhibiting amateur, as the printed-in clouds were from a negative of the professional who made the prints.

Few, indeed, of the goodly number of painstaking amateurs who pride themselves on their photographic efforts, know anything of the methods and tricks of the professional medal hunters, and the means taken by them to attain their nefarious object. In America, with the exceptions of a few sporadic outbreaks, we have thus far been spared any medal epidemic, and we trust that for the future a system of local quarantine or disapproval may prevent the evil from obtaining a foothold on American photographic soil.

Stolen Lenses.—John Crawford, who claims to reside at 532 Diamond Street, Philadelphia, was held in $600 bail by Magistrate Clement charged with the larceny of three valuable lenses, worth $63, from Albert Bromley, dealer in photographic supplies. Crawford was formerly employed at Bromley's place, and left last November, taking the lenses with him. He was arrested by Special Officer Miller of the Twentieth District. Clerk Mullen, of Carver Reed's loan establishment, identified Crawford as the man who pawned one of the stolen lenses.

Our Frontispiece.—For the present month is an exquisite winter scene by Wm. H. Rau of Philadelphia. It is one of the series of views of Niagara in winter, taken during the first week in January, on which occasion Messrs. Warner and Howland came so near losing their lives, a full account of which accident was fully described in the February JOURNAL. We have seen but few finer photographic winter and frost effects than those composing the series by Mr. Rau.

New York Camera Club.—Officers, Trustees, and Committees for 1893: President, William J. Cassard; vice-president, Samuel W. Bridgham; secretary, Harry B. Reid; treasurer, Robert J. Devlin, M.D.; librarian. Charles W. Stevens, M.D.

Board of Trustees—William J. Cassard, Samuel W. Bridgham, David Williams, W. Townsend Colbron, Thomas Manning, Robert J. Devlin, M.D., William A. Fraser, Franklin Harper, Harry B. Reid.

Committee on Admission—Lindsay C. Ivory, *Chairman;* Henry J. Hardenbergh, Francis R. Hitchcock.

House Committee—William A. Fraser, *Chairman;* William Bunker, E. R. Musgrave, Francis R. Hitchcock, Joseph T. Low.

Auditing Committee—C. Volney King, *Chairman;* A. T. Gillender, Alfred Pell, William T. Buckley, Francis S. Kinney.

Lantern Slide Committee—Franklin Harper, *Chairman;* Charles W. Stevens, M.D., J. Arthur Booth, M.D., Henry A. Blyth, William D. Murphy.

Committee on Exhibitions—Samuel W. Bridgham, *Chairman;* William Herbert, John V. Van Woert, E. N. Dickerson, Charles F. Zabriskie.

Committee on Photographic Literature and Meetings—David Williams, *Chairman;* Arthur D. Elliott, Ph.D., William A. Fraser, W. Townsend Colbron, Harry T. Duffield.

A photographer is one of the most independent of men; he never hesitates to present his views.

Illustrious ancestry is a glorious thing to have, but it won't be taken as security for a hot stew.

Photographic Hints and Formulæ.

Metol as an intensifier for collodion wet plates.—Dr. J. M. Eder, in the *Photo-Correspondenz*, advises the use of this new reducing agent as an intensifier, it having the great advantage over the old pyro process that it does not fog or color the film. It is stated that the intensifier works equally well on wet collodion and collodion-emulsion plates, either before or after fixing, or in a wet, damp, or dry condition. The formula is:

A.

Metol	15 g.
Citric acid	10 g.
Distilled water	1000 g.

B.

Nitrate of silver	10 g.
Distilled water	100 g.

For use, first flow the negative with mixture A, then add one-tenth B to above, and flow until the requisite density is secured.

Proprietary Compounds.—Professor E. Valenta has lately analyzed some of the commercial developing, fixing, and toning compounds now so largely advertised and sold to amateur photographers, under high-sounding names, in Europe as well as America, in both liquid and dry form, and usually said to be superior to all other developers, claiming to be permanent and rapid, giving density and exquisite detail, and working equally well on plate, film, or paper, etc.,—in fact, the idea is given that the base is some new agent, which is the exclusive secret of the compounder, when in fact the compound is nothing more than an ordinary every-day developer, with the addition of a little coloring matter to deceive the innocent purchaser.

Professor Valenta divides the developers into three groups. The first includes the hydrochinone class, which is the one most largely in use, viz.:

A.

Water	900 parts.
Sulphate of soda	75 "
Hydrochinone	10 "
Carb soda	150 "

A trace of eosine is added to color the solution a delicate pink.

B.—Concentrated Developer.

Hydrochinone	10 parts.
Sulphite of soda	40 "
Water	400 "
Carbonate potash	80 "

A trace of coloring matter making solution bright blue. For use, three times the bulk of water is added.

Group II.—Compound Eiko-Hydro Developers.

Water	1500 parts.
Eikonogen	12.5 "
Hydrochinone	7.5 "
Sulphite of soda	150 "
Carbonate of potash	75 "

Group III.—Latest Rapid Developers.

Water	1000 parts.
Sulphite of soda	100 "
Metol	10 "

This is used with an equal quantity of a ten per cent. solution of carbonate of soda.

This developer is also made with the addition of a trace of hydrochinone.

All of the above developers are also sold in powdered form, put up in tin boxes, or in soluble gelatine capsules, known as developing-cartridges, under such names as "Graphol," "Iconophile," etc.

Where these developers are sold in two packages, the one package contains some dehydrated soda or potash, while the other contains the respective reducing agent, with the addition of a little meta-bisulphite of potash.

Group IV.—Fixing Compounds.

These consist merely of anhydrous hypo, or in the case of the "acid-fixing powders," an addition of five to ten per cent. of dry acid sulphite, with a small percentage of alum.

Group V.—Fixing and Toning Cartridges.

The best samples analyzed consisted of nitrate of lead, hyposulphite of soda, and a small portion of chloride of gold. But in the majority of makes the latter ingredient was entirely eliminated, and the powders consisted merely of nitrate of lead and hypo, a mixture which has a toning action, but is known to exert an unstable influence.

For Snapshot Exposures.

Eikonogen	3 g.
Sulphite of soda	15 g.
Carbonate of potassium	5 g.
Distilled water	100 ccm.

Dissolve in hot water. Use when cold.

Lantern Plates.—An excellent developer for lantern slides and transparencies is made according to what is known as "Fry's Formula," viz.:

A.

Hydrochinone	150 grains.
Sodium sulphite	440 "
Potassium bromide	20 "
Water	20 ounces.

B.

Carbonate of soda	900 grains.
Carbonate of potassium	900 "
Sodium sulphite	400 "
Water	20 ounces.

Use A and B in equal parts for development.

C.

Carbonate potassium	880 grains.
Bromide potassium	880 "
Water	20 ounces.

To obtain warm tones the exposure must be increased to three times that required for black tones, and sixty minims of C added to each two ounces of developer.

Diamidophenol.—Dr. M. Andresen's new developer is stated to work highly satisfactorily, there being no tendency to stain or to any general surface reduction, as occasionally occurs with some of the older developers. The formula is as follows:

SOLUTION A.

Water	500 parts.
Sulphate of soda (crystals)	100–120 parts.
Diamidophenol	20 parts.

SOLUTION B.

Water	100 parts.
Carbonate of soda (crystals)	25 parts.
Bromide of potassium	10 parts.

For use, dilute A with 6 to 8 drops (?) of water, and add a small quantity of B (about 5 to 10 drops to 3 ounces of the mixture.)

Society Notes.

THE SIXTH ANNUAL EXHIBITION.

UNDER an agreement made in October, 1890, between the Photographic Society of Philadelphia, The Society of Amateur Photographers of New York and The Boston Camera Club, each organization holds a public exhibition of photographs, open to all photographers of the World, every third year.

These exhibitions are held annually in rotation in each of the three cities; each exhibition being under the entire control and management of the Society holding the same, and such rules as it may

Each Society agrees that it will not hold any public and open competitive exhibition except in its regular turn, without the consent of the other two Societies. Neither organization assumes any responsibility in regard to any exhibition except its own.

According to this agreement the sixth exhibition of the serie w be held under the auspices of The Photographic Society of Philadelphia, April 17th to 29th, 1893, at the galleries of The Pennsylvania Academy of Fine Arts, Broad and Cherry Sts., Philadelphia, Pa.

CONDITIONS.—AWARDS.—(1) The Silver Medal of the Photographic Society of Philadelphia will be awarded by a Board of Judges, for Artistic, Technical or Scientific excellence.

(2) The Judges will give preference, other things being equal, o pictures in which both the negative and print are the personal work of the exhibitor. All photographers are invited to compete.

(3) In making their selections, the Judges will endeavor to give due recognition to work in any of the various branches or processes of photography which may show unusual merit, obtaining if necessary the aid of special experts in any particular line.

(4) The Judges shall specify the particular pictures for which awards are made, not exceeding three by any one exhibitor, except that in the case of lantern slides, the awards shall be for sets of six slides each.

(5) The decision of the Board of Judges shall be final.

JUDGES.—(6) The Board of Judges will be selected to consist of three artists of acknowledged ability, at least one of whom shall be well versed in photography, and two expert practical photographers.

(7) The members of the Board of Judges shall not compete for awards, nor be connected in any way with the management of the Exhibition.

REJECTION.—(8) The Committee reserve the right to reject the whole or portions of any exhibit offered.

RESPONSIBILITY.—(9) The Committee will not be responsible for any loss or damage to exhibits in its charge, but will use all reasonable care to prevent such occurrence: and at the close of the Exhibition will re-pack each exhibit and ship as directed by the exhibitor.

RULES.

PICTURES ELIGIBLE.—(1) No picture which has once been exhibited in open competition at a public exhibition held in Philadelphia, in the annual series under this agreement, shall be admitted for competition.

FOR EXHIBITION ONLY.—(2) No picture will be received "for exhibition only" unless by special consent of the Committee.

PREVIOUS PRIZES.—(3) No pictures which have taken prizes elsewhere shall be so designated until after the awards have been announced.

FRAMING AND MOUNTING.—(4) All pictures except those from foreign exhibitors, must be framed (with or without glass). Pictures from foreign exhibitors, sent by mail, should be unmounted. They will be suitably mounted by the Committee, free of charge.

ENTRY FORMS.—(5) Entries of all exhibits must be made in duplicate on forms issued by the Committee.

LABELING.—(6) The exhibitor's name and address, also a number corresponding to the descriptive number upon the entry form, must be clearly written on the labels provided, which must be attached to the back of each frame by the exhibitor.

When two or more prints are mounted in one frame, a designating letter must be placed under the centre of each print, and all letters so placed must appear in the entry form opposite the title of the respective pictures.

Nothing else may appear in front of frame except title of picture and exhibitor's name. Any descriptive matter of special interest should be given on entry form for use in catalogue.

WALL SPACE CHARGE.—(7) A charge will be made for wall space at the rate of twenty-five cents per square foot (the minimum charge being one dollar) to all except members of The Photographic Society of Philadelphia, The Society of Amateur Photographers of New York, The Boston Camera Club and foreign exhibitors.

The amount of charge for wall space must be enclosed with entry form to the Committee.

If any of the pictures entered are not hung, a due proportion of the charges will be returned.

A commission of ten per cent. on all sales will be retained.

LANTERN SLIDES.—(8) Lantern Slides must not exceed 3¼ inches in height. They will only be eligible for competition and award when both negatives and slides are the personal work of the exhibitor.

Not less than six slides should be sent by any one exhibitor for competition. When more than one set of six slides are entered for competition, the exhibitor must distinctly designate on the entry form the slides constituting each set.

Arrangements will be made for the proper exhibition of lantern slides on the screen.

DELIVERY.—(8) All pictures must be sent at owner's risk, carriage prepaid, and delivered to the Committee as hereinafter directed. Return charges must be collected by carrier.

ADVERTISING.—(10) Advertising in any form in connection with an exhibit is strictly prohibited.

WITHDRAWAL.—(11) No picture may be withdrawn before the close of the exhibition.

RECEPTION OF EXHIBITS.

Pictures from American exhibitors must be sent, charges prepaid, addressed to: The Photographic Society of Philadelphia, care of the Pennsylvania Academy of Fine Arts, Broad and Cherry Streets, Philadelphia, Pa., and delivered before 9 p. m., April 3d, 1893.

Pictures from foreign exhibitors should be sent unframed, as below.

Those from Great Britain and Ireland should be delivered, carriage prepaid, to care of editor, *The Practical Potographer*, Memorial Hall, London, E. C., marked: "for The Photographic Society of Philadelphia," not later than March 1st, 1893.

Those from other foreign countries should be sent by mail and unmounted, addressed to Robert S. Redfield, Chairman Exhibition Committee, The Photographic Society of Philadelphia, 1601 Callowhill Street, Philadelphia Pa., U. S. A., to arrive not later than March 15th, 1893.

Pictures not received by dates specified above will be liable to exclusion from the catalogue and from competition.

ENTRY FORMS, ETC.—Blank entry forms may be obtained from the committee on application. They must be filled out by the exhibitor

in duplicate and sent to the Chairman of the Exhibition Committee on or before March 25th, 1893.

Blank labels, to be attached to back of frames by exhibitor, will be furnished on application.

CATALOGUES.—A finely illustrated catalogue will be published, which will be sent to all exhibitors. Copies will be on sale at the galleries during the exhibition, at twenty-five cents each.

The exhibition will be open day and evening, Sundays excepted, and several evenings will be devoted to displays of lantern slides in the lecture hall of the academy.

The names of the judges and further details will be announced hereafter.

CORRESPONDENCE.—All correspondence respecting the exhibition should be addressed to ROBERT S. REDFIELD, Chairman Exhibition Committee, 1601 Callowhill St., Philadelphia, Pa.

The Camera Club of the U. of Pa. at their meeting last week elected officers for the new term. They are as follows: President, Henry Paul Busch, '93; vice-president, George D. Codman; secretary, Percy H. Wilson, '94; treasurer, George B. Bains 3d, '95.

After the election the most important business of the evening was the consideration of the proposed exhibit by the club at the World's Fair. A committee was appointed to take charge of the matter. The exhibit will probably take the form of a series of bromide enlargements, to have a place in the general exhibit of the University of Pennsylvania. The committee consists of George D. Codman, '94; Percy H. Wilson, '94; George W. Sargent, Craig Atmore, '95, and Henry C. Burr, '93, chairman.

Arrangements are also nearing completion for the annual lantern slide exhibition, the date for which has been fixed for Friday, March 10th. The lantern slide exhibition of the Camera Club has become very popular, and the University Library, where the club has held its previous exhibitions, proved so inadequate last year that it is the intention of this year's committee that the club shall welcome its guests in a more commodious hall in the city. All arrangements are likely to be completed before the close of the present week, and the invitations and tickets will be issued immediately thereafter.

A reception given by ladies of a Boston camera club was a "hyjennikin," according to a local authority—somewhat suggestive of hygienic high jinks.

In the Twilight Hour.

POETRY is only born after painful journeys into the vast regions of thought.—*Balzac.*

PROPHET and apostle can only be rightly understood by prophet and apostle.—*R. W. Emmerson.*

GENIUS is the power which equalizes or identifies the imagination with the reality with nature.—*Hazlitt.*

WERE there but one virtuous man in the world, he would hold up his head with confidence and honor. He would shame the world, and not the world him.—*South.*

POETRY.—The true test of poetry is the impression it makes on the memory. A thrilling lyric is remembered with scarcely an effort of the mental powers.

IN OUR nature there is a provision, alike marvelous and merciful, that the sufferer should never know the intensity of what he endures by its present torture, but chiefly by the pang that rankles after it.—*Hawthorne.*

DECISION OF CHARACTER.—Without it no man or woman is ever worth a button, nor ever can be. Without it a man becomes at once a good-natured nobody, —the poverty-stricken possessor of but one solitary principle, that of obliging everybody under the sun merely for the asking.

EVERY MAN is a volume, if you know how to read him.—*Channing.*

REASON cannot show itself more reasonable than to leave reasoning on things above reason.—*Sir Philip Sidney.*

HE THAT takes sips of many arts, drinks of none.—*Fuller.*

VOLATILITY of words is carelessness in actions. Words are the wings of actions.—*Lavater.*

AN EXTREME rigor is sure to arm everything against it, and at length to relax into a supine neglect.—*Burke.*

WISDOM is better without an inheritance than an inheritance without wisdom.

IF YOUR means suit not with your ends, pursue those ends which suit your means.

EMULATION is a noble passion, as it strives to excel by raising itself, and not by depressing another.

THINK before you speak, and before you promise.

A GOOD conscience is to the soul what health is to the body. It preserves a constant ease and serenity within us, and more than countervails all the calamities and afflictions that can possibly befall us.

TAKE TIME to deliberate and advise; but lose no time in executing your resolutions.

ILL-DOERS are ill-thinkers.

FEAR is stronger than love.

A LONG life hath long miseries.

A MAN'S best fortune or his worst is his wife.

A GOOD cause makes a stout heart and a strong arm.

BLESSINGS are often not valued till they are gone.

COURAGE.—Conduct and perseverance conquer all before them.

PHOTOGRAPHIC PATENTS.

THE following list of patents relating to the Photographic interests is specially reported by Franklin H. Hough, Solicitor of American and Foreign Patents, No. 925 F. St., Washington, D. C.

ISSUE OF JANUARY 17th, 1893.

489,713,—Photograph-exhibitor. R. H. Nelson, T. H. Temple, Ridgeway, Mich.

589,512,—Camera Plate-Holder attachment. R. L. Turner, Pittsford, Mich.

ISSUE OF JANUARY 24th, 1893.

490,117,—Camera. W. S. Laighton, and A. P. Hitchcock, Norwich, Conn.

490,031,—Camera-shutter. E. J. Molera, San Francisco, Cal.

490,059,—Photographic-holder. G. F. Bambridge, Toronto, Canada.

490,180,—Photograph machine, coin-operated. P. V. W. Welsh, assignor of one-half to W. F. Freeman, New York City.

ISSUE OF FEBRUARY 14th, 1893.

491,921,—Camera-shutter. T. H. Blair and F. H. Kelley, assignors to Blair Camera Company, Boston, Mass.

491,920,—Photographic camera. T. H. Blair Camera Company, Boston, Mass.

491,619,—Photographic fixing and washing-tank. A. R. Ward, Toronto, Canada.

ISSUE OF FEBRUARY 21st, 1893.

492,149,—Photograph-exhibitor. J. Dewe, London, Eng.

492,025,—Photographic camera. A. Klay, Buffton, O.

Photographic objective. A. P. Parvin, Phila., Pa.

Arthur Lord gives the history of the old Pilgrims' Church at Plymouth in the February *New England Magazine.* The church has recently been burned down, and so interest is awakened in this historic spot.